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June 9, 1951

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



A SCIENCE SERVICE PUBLICATION

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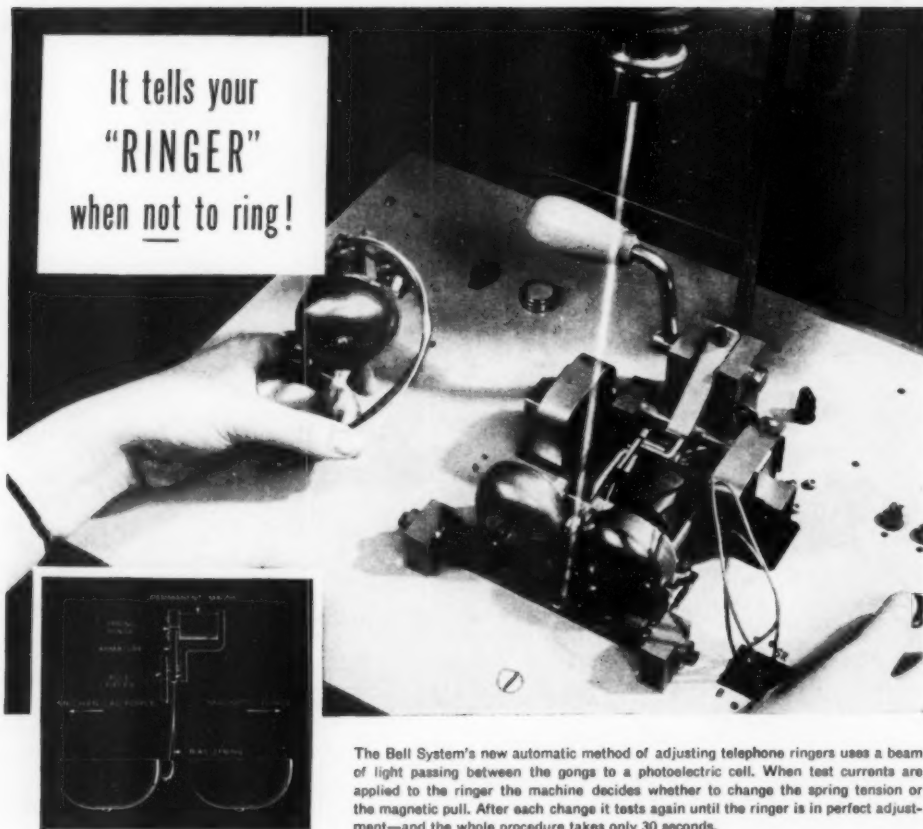
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ANN ARBOR MICH

It tells your  
"RINGER"  
when not to ring!



The Bell System's new automatic method of adjusting telephone ringers uses a beam of light passing between the gongs to a photoelectric cell. When test currents are applied to the ringer the machine decides whether to change the spring tension or the magnetic pull. After each change it tests again until the ringer is in perfect adjustment—and the whole procedure takes only 30 seconds.

To you, it's your familiar telephone bell. To telephone engineers, it's a "ringer." And it has two jobs to do.

It must ring, of course, when someone calls you. And it must overlook the numerous electrical impulses which do not concern it, such as those sent out by your dial.

Ability to respond to some impulses, to ignore others, requires exact adjustment between the pull of a magnet and the tension of a spring. If they are out of balance your telephone might tinkle when it oughtn't, or keep silent when it should ring.

In the past, adjustment was made by hand, little by little until the proper setting was reached. It took time. But now Bell Laboratories engineers have developed a machine which adjusts new ringers perfectly, before they leave the Western Electric Company plants where they are made. And the operation takes just 30 seconds.

This is another example of how the Laboratories work constantly to improve every phase of telephony — keeping the costs low while the quality of service grows higher and higher.

## BELL TELEPHONE LABORATORIES

WORKING CONTINUALLY TO KEEP YOUR TELEPHONE SERVICE ONE OF TODAY'S GREATEST VALUES



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## MEDICINE

# Hope for Attack on Viruses

**Search for chemical of penicillin-streptomycin type, effective against influenza and other virus-caused diseases, gets new hope.**

► **HOPE FOR** a chemical of the penicillin-streptomycin type that would be effective against influenza and other virus-caused diseases appears in the announcement of two new anti-virus substances.

Called "antivirotics" instead of antibiotics which is the general name for the penicillin kind of remedies, these two new ones are viscosin and ehrlichin. They were discovered by streptomycin's discoverer, Dr. Selman A. Waksman, and his associates at Rutgers University, and reported to the Society of American Bacteriologists meeting in Chicago.

Viscosin comes from a bacterium, *Pseudomonas viscosa*, which was isolated by Dr. Mutsuyuki Kochi from a soil in Japan. It is effective in the treatment of experimental tuberculosis in animals, Dr. Kochi and Drs. David Weiss, Leonora Pugh and Vincent Groupe reported. However, it is much less effective against tuberculosis than streptomycin and offers little practical

promise in that direction. It does have slight but definite activity against the viruses of influenza and infectious bronchitis of chickens. No experiments in higher animals have been carried out yet.

Ehrlichin was reported by Drs. Groupe, Jack Frankel, Mary P. Lechevalier and Dr. Waksman. It is produced by a culture of *Streptomyces lavendulae* which was isolated from soil on the grounds of the New Jersey Agricultural Experiment Station.

Crude preparations of ehrlichin exert a suppressive effect on experimental influenza virus infections in chick embryos and in mice. Daily doses injected under the skin of mice infected with the Lee influenza virus, or influenza B, reduced the degree of lung consolidation seen when the mice were sacrificed and examined four days after the infection.

No further large scale experiments with ehrlichin have been made yet. Speaking for his entire staff, Dr. Waksman stressed

the point that these new antibiotics, or antivirotics, do not seem to have any immediate potential or practical value in the treatment of diseases caused by viruses, but are rather forward steps along a long road. They point to the possibility of isolating antibiotics which are effective against true viruses.

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## BACTERIOLOGY

## Meat Spoils in Spite Of Antibiotic Treatment

► **HOPE OF** preserving foods with subtilin, one of the so-called antibiotic remedies like streptomycin, was dimmed by a report to the Society of American Bacteriologists meeting in Chicago.

Chopped beef with spores of a putrefying germ in it spoiled even when as much as one thousand parts per million of subtilin was used as preservative, Drs. A. T. Adams, John C. Ayres and R. G. Tischer of Iowa State College, Ames, Ia., found.

Smaller amounts of subtilin failed to stop spoilage. Larger amounts extended the time before the meat spoiled, but even the one thousand parts per million concentration of subtilin "did not necessarily prevent eventual spoilage," the Iowa scientists reported.

The failure of subtilin, the product of a common bacterium, hailed a year ago as a potential food preservative, may be due to one of two reasons, further tests suggested: 1. Subtilin itself may break down during storage; 2. subtilin's effect may be to stop germination of spores but not to destroy them.

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## MEDICINE

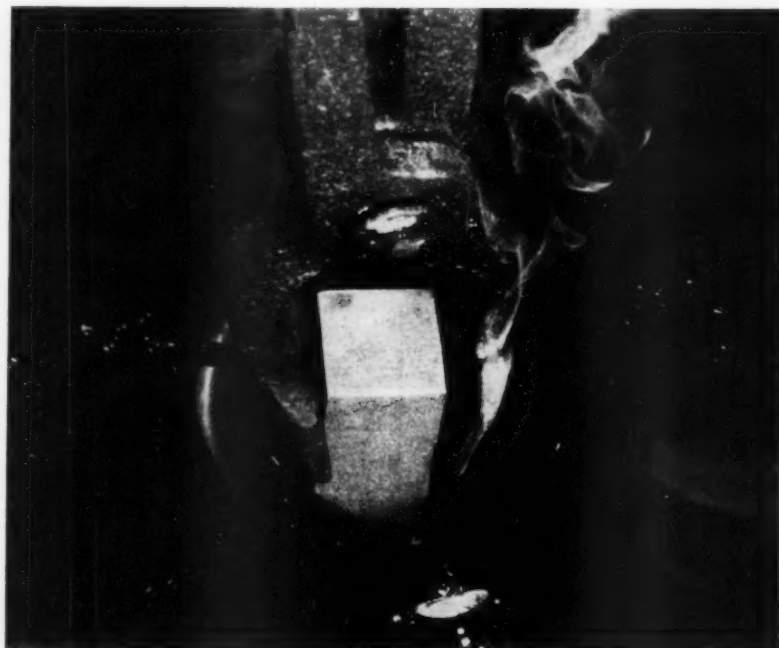
## Polio Virus Found Most Dangerous When Moist

► **THE VIRUS** of infantile paralysis is most dangerous and is spread most readily while it is in the moist state.

Drs. Harold K. Faber, Luther Dong and Rosalie J. Silverberg of Stanford University department of pediatrics give the following examples of this most dangerous and readily spread state of the virus: inhalation at close quarters of large, wet droplets; direct physical contact such as the hands and lips; taking contaminated food and drink; and use of contaminated eating and drinking utensils before they are dry.

Their conclusions come from a study of the effects of drying on the polio virus. About 40 years ago, they point out, it was suggested that the virus might be spread in house dust. Since then there has been one report of the virus being found in sweepings from the sickroom of a patient.

Dr. Faber and his associates collected dust from 118 homes in San Francisco and in other cities in the bay area in which acute polio cases had occurred within two months



**OIL QUENCH**—A hot bar of steel is quenched in oil. What happens is action-stopped in this picture taken with an exposure of one ten-thousandth of a second.

of the collection. The dust was collected by sweeping or dusting in the sickroom or from the household vacuum cleaner.

No poliomyelitis virus was detected in any of the dust samples.

Next the scientists tried drying polio virus in various ways. The results show that all forms of drying have a marked inactivating effect on the virus, whether it is in water, nose and throat washings or stool specimens. Inactivation, meaning the virus becomes non-infectious, seems to go on swiftly and becomes complete with total drying of the infected material.

The drying experiments, the scientists state, show that with adequate drying, such as might be expected with airborne infected particles under ordinary indoor conditions of temperature and humidity leading to dust formation, the period in which the virus remains active is much less than two weeks.

Details of the experiments, aided by a grant from the National Foundation for Infantile Paralysis, are reported in the *JOURNAL OF INFECTIOUS DISEASES* (March-April).

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#### AERONAUTICS

## Airless Flight Duplicated

► SCIENTISTS NOW can make their first laboratory studies of supersonic flight conditions in the region from 50 to 70 miles above the earth, where the big rockets zoom.

A group of University of California engineers in Berkeley have just completed a unique wind tunnel which has no wind in it, in the usual sense of the word.

Conventional wind tunnels have big blowers which generate howling gales that beat against small aerodynamic models. The new wind tunnel at Berkeley is actually a vacuum chamber, with an atmospheric pressure about one ten-millionth that found at sea level. In other words it duplicates the atmospheric conditions—more accurately, the vacuum—found from 50 to 70 miles above the earth.

Supersonic speed is simulated by a molecular beam similar to the type used for atomic and nuclear research. This beam is fired from a "gun" with a bore only one ten-thousandth of an inch in diameter—too small to be seen by the naked eye.

The molecules fired are generated in a

small furnace, the temperature of which determines the speed with which they emerge. At 1,000 degrees Centigrade the speed is 1,800 miles per hour.

Focused and controlled by a system of slits, the beam strikes varied model surfaces mounted in the evacuated chamber. This roughly duplicates the fluid mechanics of supersonic speeds at extreme altitude.

To measure these unique effects, the scientists have had to develop methods of measuring infinitely minute differences in pressure. One electronic gauge they have developed can detect pressure changes of one ten-billionth of the atmospheric pressure existing at sea level.

So far it has simulated speeds up to 950 miles per hour, one-fourth more than the speed of sound. It has already demonstrated that it can go to 1,800 miles per hour, and its upper range is limited only by the heat that can be generated in the furnace.

The purpose of the instrument is to develop information on supraaerodynamics in the relatively unexplored area high above the earth. Conventional aerodynamic con-

cepts break down at about 50 miles, and experimental data on flight in the near-vacuum are practically non-existent.

The scientists hope to provide a body of experimental data of vital importance in the unknown region which may be a well-traveled route of rockets in the future.

The scientists are R. G. Folsom, S. A. Schaaf, G. J. Maslach, and F. C. Hurlbut.

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*Crabgrass* is seldom found in shady places on the lawn.

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## GENERAL SCIENCE

# U.S. Unprepared for Attack

Not one of more than 250 primary A-bomb targets in U. S. prepared for enemy attack. Civil defense problems mount daily.

► NOT ONE of the more than 250 primary target areas in the United States is anywhere near ready for an A-bomb attack—eight months after the President announced national civil defense plans.

The people are not volunteering, the supplies are lacking, there are few shelters, industry has done little about protecting vital defense plants. Finally, Congress has cut down a \$400,000,000 budget request for the Federal Civil Defense Administration to \$31,000,000.

A rough estimate is that only about five to six percent of the necessary civil defense workers have volunteered. There are three reasons, according to civil defense officials. Many do not believe this country or their city will be attacked by A-bombs, many more believe that it is no use trying to do anything against an A-bomb, and, in some critical areas, civil defense organizations are not prepared to take the few who do volunteer.

Only some small towns—not in the critical target category—have recruited enough volunteers.

This attitude toward civil defense, officials say, can mean two things: 1. If an attack does come, casualties and damage will be much greater. 2. Apathy and a feeling of helplessness could produce panic which would pile casualties up even higher.

There is some preparation in the areas of civil defense which will operate through extension of already existing services—the police and fire departments and the Red Cross. However, even here, there are not nearly enough volunteers. In other areas, like rescue work, special weapons defense, radiation detection teams and warden services, there is almost no preparation at all.

The Federal Civil Defense Administration has always insisted—and the law says—

that civil defense is a state and local problem and that its functions are to provide training and guidance, to standardize equipment and procedures, to provide funds for materials too expensive for local governments and to help in writing mutual assistance pacts between states and cities.

It has been criticized by many states and local civil defense directors for moving too slowly. Another criticism has been that it is merely a pamphlet-writing, speech-making outfit. The FCDA, however, has had to operate so far on a small special Presidential fund. It has secured cooperation from other government agencies and from private organizations to produce millions of copies of its pamphlets, which it considers valuable guides to what to do in case of A-bomb attack.

They point to 16,500,000 copies of "Survival Under Atomic Attack," instructions to the average citizen. Only 225,000 of these were paid for by the federal government. The rest were "promoted" by FCDA.

Some industries which already have safety problems—oil and electronics among them—have a good basis of preparation against attack, according to civil defense officials. However, the federal agency has not even heard from other vital industries—machine tools, ball bearings, to name only two. Generally, industry is as badly prepared as are the nation's cities.

Civic organizations, generally, have responded to appeals for help from FCDA. Two thousand representatives of organizations came to Washington for a two-day pep rally early in May. The groups are now making plans to work in civil defense and to recruit volunteers. But they also are up against the general apathy and helplessness feeling.

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into helium in the immense heats of the sun and stars.

To discover whether the light elements participate in the reaction, the hydrogen-enriched bomb would be compared with an ordinary plutonium bomb of the same size.

A prime problem is to maintain the immense temperature of the triggering A-bomb explosion for the longest possible time. It takes time for the hydrogen reactions to take place and if the extreme ignition temperature of the fission of the plutonium can be prolonged for a very small fraction of a second, the effect should be much greater.

The chances are that much of the research on the H-bomb explosion is concerned with this prolongation of the explosion. This is also important in the non-hydrogen A-bomb, because if the explosion is too fast the material will fly apart before most of it reacts or fissions.

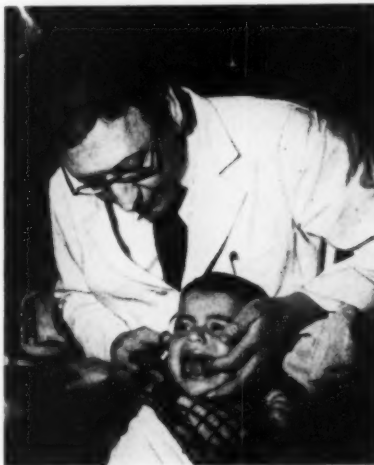
Of course, we have no assurance that the experiments were successful, since a failure could contribute, even though it be negatively, to developing the hydrogen bomb.

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## BACTERIOLOGY

## Sweet-Sounding Chemical Kills Disease-Causing Fungi

► A CHEMICAL with the sweet-sounding name ethyl vanillate will kill or stop the growth of all but two of the serious disease-causing fungi, Dr. David L. McVickar of



**SPECIAL INSTRUMENTS**—A cerebral palsied child receives dental treatment with special instruments at the Pediatric Cerebral Palsy Clinic of Columbia University's Presbyterian Medical Center. The seamstress thimble protects, yet permits freedom for the dentist's finger.

## PHYSICS

## It's Still the H?-bomb

► SCIENTISTS "in the know" presumably have some hopeful information on atomic fusion of the heavier kinds of hydrogen, called deuterium and tritium, necessary for the H-bomb. If we knew what they know, it would be possible to tell whether it is more or less probable that the hydrogen bomb can be built successfully.

For the Atomic Energy Commission statement that "experiments contributing to thermonuclear weapons research" may be

calculated to confuse the Kremlin as well as uncleared Americans.

We can guess that in the recent Eniwetok experiments some of the isotopes of hydrogen were wrapped around, as it were, a plutonium A-bomb. The immense heat of the atomic explosion should, according to theory, fuse together the deuterium and tritium so that some of their mass is converted to energy in the transmutation, somewhat as hydrogen is believed to turn

Vanderbilt University School of Medicine reported to the Society of American Bacteriologists meeting in Chicago.

Fungi which attack the entire body, not just the skin, are fatal in a high percentage of cases, he pointed out. So far, the search for substances active against these fungi has met with little success.

These serious fungus diseases include actinomycosis, or lumpy jaw, which attacks man as well as cattle; histoplasmosis; blastomycosis; and coccidioidomycosis, or Valley fever. The lungs and other internal organs are affected, and the diseases are

sometimes mistaken for tuberculosis or for cancer.

Ethyl vanillate is a new substance with the chemical name, ethyl 3-methoxy-4-hydroxy-benzoate. It is a by-product of wood pulp manufacture, is quite inexpensive and is nontoxic to humans at concentrations of 30 to 40 mg per cent in the blood.

The only disease-producing fungi not stopped by this chemical are *Cryptococcus neoformans*, cause of European blastomycosis, and *Candida albicans*, cause of moniliasis.

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#### ENGINEERING

## Snows Give Power

► STREAMS FROM spring melting snows on Austria's highest mountain peak drop more than three-quarters of a mile to give light and power to homes in Vienna, 250 miles away.

Thirty to 40 feet of snow has been piling up during the winter on the Grossglockner, a mountain rising to more than two miles above sea level in the Austrian province of Salzburg. Now it is melting to icy water which is caught in two artificial lakes high on the mountain.

From these lakes the water drops through tunnels to the power station in the valley far below. There is a vertical drop of 4,080 feet at one point from the higher lake, Mosserboden, to the lowest power house. This long drop of a great volume of water develops the highest pressure per square inch of any station of its size, according to engineers of the project.

Kaprun, as this ECA-sponsored undertaking is called, is one of the largest hydroelectric power projects in Europe. When completely finished, it will produce 600 million kilowatt hours of energy per year, 10% of Austria's total power production. Part of the huge project will be completed by 1952, and, if all goes well, the whole project will be finished in 1955.

The Kaprun plant, with two generating units, began producing power in 1944. At first it was available only for use in the Salzburg province. Over a year ago, con-

nections with Vienna were completed and now much-needed power flows into the nation's capital.

The possibility of making use of the Grossglockner's melting snows was first considered by a German engineering firm more than 20 years ago. The firm gave up its attempt to construct a power project after finding that canals built high on the mountain to channel water froze during the winter.

The Nazis resurrected the project shortly after war broke out. They solved the weather problem by carrying the water through tunnels that kept it above freezing temperature. The two artificial lakes freeze only on the surface, so power production is unhampered by temperature changes.

The Nazis used 3,000 slave laborers when they began to build Kaprun. They spent the equivalent of \$25,000,000 and the lives of many of the workers.

Today again 3,000 workers toil at Kaprun, but they are well paid, fed and clothed. They receive a higher than average wage, to compensate for the hard mountain labor. Machines also must conform to mountain conditions. The type of swaying cableway used to transport tourists up high mountains is used at Kaprun for carrying men and materials up the Grossglockner, through terrain where even American bulldozers cannot build roads.

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#### AGRICULTURE

## Fire Seeds Into Ground

► USING THE escalator principle is the best way yet found to fire peanut and certain other seeds into the ground with correct spacing at modern tractor speeds.

Peanut plants must be exactly spaced, either three or five inches apart, depending on the kind. To do this, J. G. Futral of the Georgia Agricultural Experiment Station, Experiment, and R. L. Allen of Georgia Institute of Technology's engineering experiment station, Atlanta, hit on the idea of adapting the escalator.

Up a slope of 45 degrees, they ran a thick belt with holes sized to carry just one peanut, picked up from the hopper or pocket of a planter. Toward the top of the slope, this belt is covered with another, soft rubber one to hold the seeds in place while the belts go over a roller and turn downward to the top of a short delivery tube.

Here the two belts turn sharply around rollers, away from each other, shooting the seed through the tube and into the ground. A four-row planter has been built.

Practical working speeds will depend not on the ability of the planter to pop the seed uniformly in the rows, but on how fast the operator is able to drive with reasonable ease, the two scientists explain. In sheer planter capacity, the new four-row unit is equal to about ten horse-drawn, two-row planters.

Already proved for performance with peanuts and soybeans, the high-speed accuracy may soon be extended to other crops with seeds of size and form suitable for the equipment. Using pelleted seeds, any crop for which accurate spacing is important could be planted by this method.

Details of the operations are reported in the journal, AGRICULTURAL ENGINEERING (April). The National Peanut Council and the U. S. Tillage Machinery Laboratory at Auburn, Ala., cooperated in the early stages of the work.

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#### AERONAUTICS

## Exhaust Blast from Another Plane Starts Jet Engine

See Front Cover

► JET ENGINES in planes at advanced stations in Korea where external power is not available are being started by the exhaust blast from an operating plane standing in front of it, a General Electric service engineer on duty with a fighter group in that country has revealed.

Jet aircraft usually rely upon field power units for starting, rather than their own electrical system, because of the large amount of power required. Several types of self-contained starting units are under development but none are in extensive use. A storage-battery type is not satisfactory if used to start the engine itself because of the size and weight of the unit that would be required.

The blast method in use in Korea, as shown on the front cover of this week's SCIENCE NEWS LETTER and described by T. J. McIntyre, G.E. engineer, requires that the plane with the operating engine be placed so that its exhaust tailpipe is directly aligned with the intake of the plane whose engine is to be started. It must be far enough ahead to protect the pilot and airframe from the high-temperature blast. This exhaust blast is sufficient to start rotation of the engine in the plane behind.

Tests in Korea were made with the North American F-86 fighters, which are equipped with General Electric J-47 turbojet engines. In the initial test, the pilot wore an oxygen mask for protection, but this precaution was found unnecessary. Neither plane nor engine suffers any damage from the excessive heat or the blast effect of the discharge, Mr. McIntyre stated.

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## PUBLIC HEALTH

# Disease Threat in War

Real disease trouble maker if Korean conflict continues is likely to be schistosomiasis. May take role of typhoid, 'flu and malaria in previous wars.

► THE DISEASE likely to be a real trouble maker if the present conflict in Korea continues or is extended is schistosomiasis, Dr. L. T. Coggeshall, dean of biological sciences and medicine at the University of Chicago, declared at the meeting of the Society of American Bacteriologists in Chicago.

This disease, caused by a fluke and spread by snails, may take the roles played by typhoid fever in the Civil War, by influenza in World War I and by malaria in World War II, he suggested.

Unless treated early, the outlook for the patient is poor. Once the spleen and liver become enlarged, treatment usually has no effect and the patient dies of exhaustion or terminal infection.

The scanty, almost non-existent studies of the disease in Korea show that only the southern portion is involved, but "South

China is a hotbed of infection," Dr. Coggeshall declared.

The disease is caught by direct contact with the germs, known as cercaria, that have hatched from eggs deposited with feces, or intestinal wastes, in bush water. The intermediate host of the disease germ is the snail that normally lives in rice paddies, cultivated or abandoned.

During the last war about 2,000 cases occurred among American troops in the Philippines. The men got the infection during engineering work associated with water or while swimming and wading.

"In Korea," Dr. Coggeshall said, "we know that hordes of Chinese Communists with their known lack of even primitive sanitary measures must be depositing their infected feces in places where snails are really available."

Pointing to the conditions that make for effective spread, he said:

"Korean agriculture is primarily rice grown in water. The diked fields are flooded periodically, and the intermediate snail hosts are so widely dispersed. There is extensive use of human feces for fertilizer. The susceptible population will be available. Lack of roads and heavy fighting make it impossible to avoid infected water. Thus it seems we have all the prerequisites for trouble."

There are no vaccines against this disease and no satisfactory treatment, he continued. The cercaria can be destroyed by certain chemicals, particularly copper in water. But wide-scale use of these is difficult and impractical.

Dr. Coggeshall called for more studies of this potentially dangerous disease germ and also for more study of the dysenteries. Just because dysentery has always been a major war problem is no reason, he stressed, that it should be considered inevitable.

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## ARCHAEOLOGY

## Link Culture of Atlantic and Pacific Sides of Panama

► POTTERY AND stone implements unearthed in Panama and just brought back to the U. S. point up a link between the ancient cultures of the Atlantic and Pacific sides of that country.

Mountains divide the tiny isthmus, the Atlantic side usually being soaked by Caribbean rains. The artifacts were brought back by Dr. Matthew W. Stirling, director of the Smithsonian Institution's Bureau of American Ethnology and head of Middle America surveys, under the joint auspices of the Institution and the National Geographic Society.

"There is probably no region in America which has been more completely unknown to archaeologists," stated Dr. Stirling. It was for this reason that he chose Panama's Atlantic drainage basin for exploration. The pottery and stone weapons collected at different sites along the rivers are of a primitive order, Dr. Stirling said, and that was as expected.

Bone and shell fragments, fairly common finds on the drier Pacific side of the divide, are absent, he found, from mounds on the wetter Atlantic side.

Dr. Robert Rands, specialist in Middle American archaeological lore, assisted Dr. Stirling as did his wife, Marion Stirling. Some of the pieces will go to the Smithsonian Institution, some to Panama's National Museum and others to museums on both sides of the Rio Grande.

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**PRE-COLUMBIAN PICTOGRAPH**—Mrs. Matthew W. Stirling, archaeologist wife of the leader of the Middle America surveys, studies one of the many pre-Columbian pictographs carved on two huge rock hillsides near La Pintada, village near the ridge of western Panama's mountain divide.

Sodium salt of trichloroacetic acid, TCA for short, is a successful chemical to use in the control of many perennial weedy grasses such as quackgrass, Johnson grass and Bermuda grass.



## ORNITHOLOGY

**Mourning Doves Dying Due to Parasite Disease**

► DOVE HUNTING prospects in parts of the Southeast appear rather poor this year, may grow even worse in the following years. Mourning doves in Alabama are dying in increasing numbers from the effects of trichomoniasis.

This year's total of dead doves may be the highest yet. Cause of the deaths is a parasite known as *Trichomonas gallinae*. It forms large, yellowish swellings in the upper parts of the throat, making it impossible for the bird to eat properly.

The Cooperative Wildlife Research unit of Alabama Polytechnic Institute at Auburn, Ala., is asking sportsmen and others interested in wildlife preservation to report all dead or sickly birds found in Alabama, where the disease has hit hardest. Dr. Arnold O. Haugen heads the Alabama unit studying the disease.

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## AERONAUTICS

**Air Force Pilots Trained in Ground-Based Simulators**

► AIR FORCE future pilots will soon be getting plane-control training at Wright-Patterson Air Force Base, Dayton, Ohio, in ground-based equipment called flight simulators, each built for a particular type of plane. Air Force offices revealed that orders have been placed for flight simulators for six different types of planes.

The Air Force is now using a flight simulator for training pilots for the jet-propelled F-80 Shooting Star. Those on order will be for training for three of the largest bombers now in use, two large cargo planes, and the all-weather interceptor, the F-86-D. One type of flight simulator is used by Pan American Airways in training pilots for the Boeing Stratocruiser.

Each flight simulator is an exact duplicate of the cockpit and its instruments in the plane for which the pilot is being trained. The trainee takes the pilot's seat with the controls in front of him. Two instructors accompany him. One monitors ordinary flight performance. The other monitors radar operations, and also controls a simulated target plane.

With its many electronic devices, the simulator can be made to simulate very closely the flight of the airplane for which it is designed. Besides flight altitude, it can duplicate engine fires, fuel system, electrical system, instrument and landing gear failures. The instruments operated by the electronic computers reflect the condition of the simulated airplane just as they would on the aircraft itself.

In use, "problems" are thrown on instruments in front of the trainee by an instructor in the rear, and the pilot-in-

training learns to manipulate the particular control to meet the problem. One problem might be, for example, a simulated fire in an engine.

These ground-training devices do not teach a trainee the principles of flight. They are invaluable, however, for transition training to familiarize a pilot with a new plane type. Orders for the new flight simulators have been placed with the Curtiss-Wright Corporation, Link Aviation, Inc., North American Aviation, Inc., and Engineering and Research Corporation.

Science News Letter, June 9, 1951

## AGRICULTURE

**Better Grass Will Give More Food for Defense**

► BETTER GRASS will give America more food to meet defense needs. And that better grass is available now, only waiting to be planted.

The U. S. has set a goal of producing 3% more food and fiber this year than ever before. Wise use of existing grass pastures would give us that goal, without planting any new land. Only upping production to maximum on lands now given to pasture would be required, Department of Agriculture experts point out.

This could be done by using better, more hardy varieties of grasses in pastures. More extensive fertilizing would also improve grass quality.

Pastures in the northeastern United States, for instance, could carry three times as many cattle as they now do if good management practices were generally applied. As many city dwellers know, constant attention is required to grow good grass. Some farmers, however, tend to let the grass just grow and to let their cows eat just a little less if the pasture grass does not seem to be quite as rich and thick as it might be.

Science News Letter, June 9, 1951

## CHEMISTRY

**Foam Fire-Fighting System Provides Shipboard Safety**

► THE AMERICAN Navy now has what it believes to be the most efficient systems in the world for combating gasoline and oil fires aboard ship or at shore stations, it has announced.

Its methods, the results of ten years of research and development, use mechanically produced foams containing air, water, and protein solutions as extinguishing and protecting agents. The protein used is not announced.

As a part of the system, a new foam generator has been developed with portable hoseline foam outlets. A special nozzle is used. It can deliver foam in a straight stream over long distances or in a protective cone-shaped curtain.

Science News Letter, June 9, 1951

**IN SCIENCE**

## ELECTRICITY

**Rechargeable Electric Cell Patented**

► AN IMPROVED rechargeable electric cell, for uses ranging from hearing aids to radio transmitters, has brought patent 2,554,504 to Samuel Ruben, New Rochelle, N. Y. It is a secondary cell, claimed to be capable of being charged and discharged a large number of times without appreciable loss of its current storage capacity or overall efficiency.

A feature of this cell is the use of silver in a powder form mixed with an oxide of mercury for the positive electrode, the silver reducing the electrical resistance of the mercury oxide and eliminating the danger of coalesced mercury particles. The negative electrode essentially comprises zinc together with mercury as its active ingredient, the mercury being present in the form of zinc amalgam. The electrolyte is an aqueous solution of an alkali metal hydroxide, such as potassium hydroxide, initially containing a substantial quantity of alkali metal zincate, such as potassium zincate.

Science News Letter, June 9, 1951

## CHEMISTRY

**Living Processes Could Produce Unusual Chemical**

► CHEMICAL DETECTIVE work carried on by rival university research teams promises to throw new light on one of nature's processes.

Edward M. Kosower, a young chemist, is working at the University of California at Los Angeles on the way known natural processes could make a certain rare chemical. This unusual compound was reported less than a year ago by Klaus Hofmann and Robert A. Lucas of the University of Pittsburgh.

Fat-like material formed by living organisms was investigated by the Pittsburgh team. The unusual compound found in it has a structure known to chemists as a three-membered ring. Only certain rare substances distantly related to turpentine are known to occur naturally with this structure.

Mr. Kosower's study, reported to the journal, *SCIENCE* (May 25), suggests that this type of compound can be formed by chemical processes known to be working in living tissues.

A top winner in the National Science Talent Search of 1945, Mr. Kosower is now a research fellow of the U. S. Public Health Service's National Institutes of Health.

Science News Letter, June 9, 1951



# SCIENCE FIELDS

## ENGINEERING

### Shortage of Engineer Graduates This Year

► DEFENSE industry faces a shortage of 11,000 engineers from this June's graduating class. The situation will be worse than that during the next two or three years.

This report of Maynard M. Boring, chairman of the statistical committee of the Engineering Manpower Commission of Engineers Joint Council, is based on a survey of this year's graduating class.

Of the total of 38,000 to be graduated, the report declares, about half are expected to be taken into the Armed Forces, through the draft, R.O.T.C. or reserve and national guard units.

Defense industry, it is contended, needs 30,000 of the graduating engineers each year. Graduating classes will become smaller and smaller for the next few years.

The report was based on a survey of 86 engineering colleges who expect to graduate 18,630 engineers this month, about half the country's total.

"The Armed Services need ships, planes, tanks, guns, trucks, radar, radio, sonar and other modern devices of war," Mr. Boring pointed out. "They need food, clothing, transportation and other goods and services. These are the result of research, development, design and other engineering applications by industry. Industry needs its engineers."

Science News Letter, June 9, 1951

## NUTRITION

### Eat Variety of Foods For Best Nourishment

► IF YOU live on a modern, scientifically run farm or visit one this summer you will learn about what the farmer calls "growing medicine." This is a combination of one of the newest vitamins, B 12, and one or another of the antibiotic drugs such as aureomycin or streptomycin. It helps baby pigs and chicks and other young animals grow bigger than they would without these extra substances. Apparently it does this by helping young animals make more efficient use of amino acids, the chemical building blocks of which proteins are made. The same vitamin may help humans grow big, too, though scientists so far have not much evidence on this point.

Vitamin B 12 is known to be useful for humans, however, in treating pernicious anemia. Yet this vitamin has only recently been discovered, though scientists knew for years that some substance in liver was effective in pernicious anemia.

The B 12 discovery is one example of the fact that scientists do not yet know all the chemicals in foods that are important for health. More than 40 such substances, called nutrients, are known, but other important ones will be discovered in the future. Dr. Esther Phipard, U. S. Department of Agriculture nutritionist, predicts. And each time one is discovered, the discovery shows again the importance of liking and eating a variety of nourishing foods, Dr. Phipard stresses. Nutritionists who work out food plans aim to provide enough of certain key nutrients for the body's known requirements, Dr. Phipard explains. When daily meals provide sufficiently for protein, fuel, calcium, iron, vitamin A, three B vitamins—riboflavin, thiamine, and niacin—and vitamin C, the chances are good that the foods will include enough of other nutrients, including the unknown, for normal needs.

Science News Letter, June 9, 1951

## INVENTION

### Two-Film Camera Takes Black or Color Pictures

► A TWO-FILM camera, on which Clarence C. Smith of Flushing, N. Y., received patent 2,554,349, can be loaded with a color film and an ordinary film at the same time so that pictures may be taken in color or black-and-white at the choice of the photographer.

The film holder of the camera, which is attached in a similar manner as the usual film pack holder, holds the two films with their photosensitive surfaces facing outward. The holder is merely reversed in position to change from one film to the other. Safety slides are provided for protecting the two films from light prior to exposure in the camera.

Science News Letter, June 9, 1951

## INVENTION

### No Wall Smudge Left By Newly Patented Heater

► A WALL type heater which leaves no deposit of smudge on the wall above it has been patented by Noel E. Blazer, Berkeley, Calif., who is the recipient of patent 2,552,837. Westinghouse Electric Corporation, East Pittsburgh, Pa., has acquired the patent rights. Wall type heaters are recessed in the wall, usually creating an upward draft along the wall and leaving dust particles on it.

Behind this heater itself is space through which cool air circulates, while air passing through the heater is warmed. Deflectors on the top of the frame of the unit cause the air currents to move upward but away from the wall. The cool air current is between the wall and the warm air current until both have acquired a vertical direction of flow.

Science News Letter, June 9, 1951

## PSYCHOLOGY

### Mental Hospital Aides Help Patients Recover

► PART OF the recent revolution in treatment of mentally sick persons has to do with the aides in mental or psychiatric hospitals. When these institutions were called asylums, the patients were in charge of guards. These often were untrained, underpaid men and women who worked in the asylums because they could not make a success of anything else. Today mental hospitals are employing more and more trained psychiatric aides who help sick people get well.

Science News Letter, June 9, 1951

## INVENTION

### Trace Underground Water To Aid Oil Production

► A METHOD of tracing the underground flow of water which will be of particular value in the oil industry where water pressure is being used to get secondary production of petroleum has been awarded a patent by the government. In this procedure water is forced down a central drill hole to drive the underground crude oil through the sands to the wells under pumps.

The injected water used in this process contains borax. Very tiny traces of this boron chemical that pass from the injection well to a producing well can be detected by spectrographic analysis. A suitable chemical for this purpose has been long sought by oilmen. Borax, the inventors of this process claim, is only substance yet found that answers the full requirements as a satisfactory tracing material for this particular application.

Patent 2,553,900 was issued to Richard L. Doan and Edwin Fast, Bartlesville, Okla., for this process. Rights have been assigned to Phillips Petroleum Company of the same city.

Science News Letter, June 9, 1951

## INVENTION

### Patent Improved Type Of Solar Heater

► A SIMPLE and improved type of solar heater to use heat from the rays of the sun to heat air, which in turn heats water, brought Roy Everett Barnett, Wauchula, Fla., patent 2,553,073. His heat-catching box, placed inclined at a proper angle, contains under a glass cover sheets or layers of glass or copper arranged like a series of open overlapping steps. Bottom layers are painted black. Air enters at the lower end and, after being heated, passes out the top and into a chamber where it heats the water.

Science News Letter, June 9, 1951

## ASTRONOMY

# Small Fry of the Solar System

**Not just nine, but thousands of planets are known to circle our sun. Most of them are tiny bits of matter, ranging from several hundred miles across down to a city block.**

By **MARTHA G. MORROW**

► **THERE ARE** thousands of known planets circling our sun. Yet it is still quite right to say the chief planets are Mercury, Venus, our own earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto, arranged in that order outward from the sun. The other planets are little bits of matter, ranging from several hundred miles across down to a city block.

These small fry of the solar system, more than 1,500 of which have had their paths calculated, circle the sun in between the orbits of Mars and the giant planet Jupiter. Almost every month another minor planet or two is discovered.

The earth has never been known to collide with one of these mountains hurling through space, but it has come pretty close to some, astronomically speaking. In October of 1937, for instance, a baby planet discovered by Dr. Karl Reinmuth of Heidelberg, Germany, came within some 485,000 miles of the earth. This is believed the narrowest escape the earth has had within the period of astronomical observations. But the chances of a real collision with an asteroid are slight, astronomers assure us.

This minor planet, named Hermes, and only about a mile across, during its trips around the sun may some day come closer to the earth than the moon ever does. With a very elongated orbit, it swings within 220,000 miles of the orbit of the earth, whereas the moon is always at least 222,000 miles away. One of these days when the earth is nearby as this flying mountain makes its nearest approach, Hermes may conceivably come between the earth and the moon.

## Dumbbell Shaped

Eros, another baby planet was found in 1931 to be dumbbell-shaped. It varies noticeably in brightness as first the broad side, then the narrow end is turned toward the earth. Swinging within Mars' orbit as it gets near the sun, Eros can come within 16,000,000 miles of the earth. Its orbit is comparatively regular so that it can be followed in its trip away from the sun and a very accurate idea of its motion has been derived.

This little world has proved a particularly useful astronomical yardstick, helping astronomers by triangulation to determine the distance to the sun and major planets with great accuracy. Two decades ago,

during a close approach, Eros was used by Sir Harold Spencer Jones, Astronomer Royal and director of England's Royal Observatory, to determine the earth's average distance from the sun as 93,005,000 miles. Observations of Eros made from all parts of the world were employed in this study.

Last year Dr. Eugene Rabe of the Cincinnati Observatory announced the most accurate calculation to date of the mass of the planets Mars, Venus, Mercury and earth-moon. These values were made possible through use of a new, more accurate path for the asteroid Eros, which Dr. Rabe obtained by analyzing observations of the minor planet over a 20-year period. Noting how these planets pulled little Eros out of its calculated orbit, it was possible to tell, more accurately than ever before, just how massive each of these planets is.

## New Yardstick

Last year another minor planet was discovered which may replace Eros as a yardstick for solar distances. At its closest approach to the earth, it is only one-third as far away as Eros when it comes nearest our planet. Discovered at the University of California by C. A. Wirtanen, 1950 DA stayed in sight long enough for its path to be accurately computed by Dr. Leland E. Cunningham. Believed to be only about a half-mile across, this baby planet swings about the sun in an elongated orbit every two years or so.

Although the large majority of the minor planets travel in relatively circular orbits, and stay pretty much between the orbits of Mars and Jupiter, others go far afield. One daring asteroid, Hidalgo, follows a comet-like orbit of 14 years which sends it almost out to the multi-ringed planet Saturn.

The little world that gets closest to the sun is Icarus, discovered only two years ago. Both this and Hidalgo were found by Dr. Walter Baade, formerly of the Hamburg Observatory in Germany, and now on the staff of the Palomar and Mt. Wilson Observatories. Traveling in an elongated, football-shaped path of only 409 days, Icarus moves within the orbit of the sun's nearest major planet, Mercury, and comes within 17,000,000 miles of the sun. Then it swings out beyond the orbit of Mars, reaching a distance of 180,000,000 miles from the sun.

Several hundred asteroids discovered since the turn of the century have already

gotten lost. Some have not been spotted within the past decade. Others were never seen often enough for an accurate orbit to be calculated for them. So astronomers have banded together to appoint guardians for these stray sheep of the heavens. Japanese, German and Italian as well as American observatories have adopted these orphan planets.

Chairman of the search for minor planets, both old and new, is Dr. Paul Herget, director of the Cincinnati Observatory. The Observatory itself has become the international clearing house and publishing center for information about them.

When a new planet is discovered, with a few observations it is possible to compute its position in the near future. If observed for two to three months, its position when again near the earth can be calculated pretty accurately. But these tiny planets are easily pulled out of their path by large planets, particularly giant Jupiter. So they must continually be kept track of as they move across the heavens so they won't get lost or be mistaken for a new planet when spotted again.

At the Cincinnati Observatory the paths of 80 of these "lost planets" have been calculated so as to include the effect of Jupiter since the time they were discovered with the hope they may now be reobserved.

Using punch card machines, the pull of the planet Jupiter on these tiny worlds was computed for a total of 10,000 separate dates. The resulting predictions of where the minor planets will probably be found now have been sent by Dr. Herget to astronomers not only here in the United States, but in Japan, Spain, Germany, Africa and France, in the hopes that some will be rediscovered. Most successful in this search so far is the Goethe Link Observatory of Indiana University, where about 20 of the more seriously lost planets have been located.

## First Was Ceres

The first minor planet was discovered only 150 years ago. At the end of the 18th century after the discovery of Uranus, whose location fitted nicely into the rule of planet distances worked out by J. E. Bode, astronomers began to suspect that an undiscovered planet revolved in the space between Mars and Jupiter. On the first of January, 1801, the Sicilian astronomer G. Piazzi, looking for a certain star, noticed a pin-point of light moving across the heavens. This, the first known asteroid, he named Ceres.

Shortly after finding Ceres, the astronomer became ill and before he recovered or news of his discovery reached others, the earth had moved too far in its orbit



**BABY PLANET OVER MANHATTAN**—This artist's sketch shows how the tiny planet Hermes would probably look should the baby planet be pulled out of its orbit and crash into the earth at New York, although astronomers assure that there is little chance of this happening.

for the tiny planet to be spotted. There was danger that the little planet would be lost forever among the multitude of stars, but the German mathematician C. F. Gauss, then only 24, developed a method of determining a planet's path from only three observations and predicted Ceres' apparent position. Here it was rediscovered almost a year later.

The size of Ceres, less than 500 miles across, was most disappointing as astronomers had expected a much larger planet. Puzzling also was the discovery of Pallas, only about 300 miles across, the next year. Then in 1804 Juno, 118 miles in diameter, was found. Vesta, 248 miles across and the only asteroid visible to the naked eye, was spotted in 1807. By 1890 more than 300 were known.

Photography greatly simplified the job of searching for minor planets for, like comets, they leave a trail across the plate. Within the present century over 3,000 have been found, and around 400 have been discovered in a single year. But many asteroids are seen so fleetingly that only one in five has its path computed with enough

accuracy to warrant an estimation of its future location.

There are thousands, probably tens of thousands, and possibly hundreds of thousands of tiny planets still to be discovered with such telescopes as science has now placed at our disposal. But large ones a hundred miles or so across have probably all been found.

There are about 1,500 minor planets 25 miles or so across yet to be discovered, estimates C. H. Schuette of Munich, Germany. All these would be of 13th and 14th magnitude, and thus a good telescope would be needed to pick them up. Asteroids of the 15th and 16th magnitude yet to be seen number in the tens of thousands, Mr. Schuette calculates. All of these will probably never be found even though many much fainter will be picked up accidentally throughout the years.

Five to ten baby planets the size of Ceres were formed between the orbits of Mars and Jupiter about the time our earth was born, according to Dr. Gerard P. Kuiper of Yerkes Observatory of the University of Chicago. Several small planets

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were created instead of a single big one because of the disturbing pull exerted by the near-by giant planet Jupiter, which likewise was being formed from the cosmic cloud about that time.

Sometime within the past three billion years two of these minor planets bumped into each other, Dr. Kuiper reasons. Numerous tiny planets were thus created. Collisions between these baby planets became increasingly frequent until thousands of asteroids, flying mountains known to exist in this region today, had formed.

The nearest any of us will ever come to a minor planet is a meteorite, fragment broken off one of the baby planets. These cosmic bits flash through our atmosphere as fireballs, almost as bright as the sun and easily seen in the daylight. Thousands of these souvenirs of small neighboring planets have been found here on earth, and some actually have been seen to fall.

Science News Letter, June 9, 1951

Bread baking is one of the most ancient arts.

Raisins are good food for turkeys, California experts claim.

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## MEDICINE

# Polio Progress Report

Research in fight against infantile paralysis includes studies of vaccines, diet and ACTH, bacteriologists' meeting told.

► **ADVANCES** IN the fight against infantile paralysis range from studies of diets and vaccines to cockroaches and one of the famous anti-arthritis remedies, ACTH.

Here is the box score, as reported at the meeting of the Society of American Bacteriologists in Chicago.

1. Vaccination against either whooping cough or diphtheria or the combined vaccination now generally used does definitely lower the resistance to polio.

Laboratory evidence for this, from 19 experiments involving over 450 mice, was presented by Drs. Albert Milzer, Molly A. Weiss and Katherine Vanderboom of Michael Reese Hospital and Research Foundation, Chicago. This is expected to strengthen advice doctors have been giving to postpone whooping cough and diphtheria vaccinations until after the polio season each year.

2. Cockroaches are more likely to be spreaders of polio than flies. Laboratory evidence that they can "acquire, maintain and excrete" two strains of human poliomyelitis virus and one strain of Cocksackie virus was presented by Drs. Robert G. Fischer and Jerome T. Syverton of the Universities of North Dakota and Minnesota.

"The most probable explanation" of the way these viruses spread naturally, in the opinion of these two scientists, is from intestinal wastes to food or drink, as typhoid fever is spread. This suggests flies as spreaders of the disease but, the scientists point out, in many parts of the world cockroaches are more constantly and intimately associated with man's intestinal wastes and food than flies. Moreover, the long life, gregariousness and nocturnal habits of cockroaches give them opportunities flies do not have for acquiring viruses from excreta and transferring them to food.

3. Depriving mice of the protein building block, tryptophan, by feeding them a closely related chemical increases their resistance to polio, Drs. A. F. Rasmussen, Jr., P. F. Clark, Sam C. Smith and C. A. Elvehjem of the University of Wisconsin reported. While humans are not likely to get a tryptophan-deficient diet, the mouse studies seem to give a clue to the polio virus' nourishment requirements which may lead to a polio-fighting medicine. A similar clue comes from the Wisconsin group's finding that mice with underactive thyroid glands were less resistant to polio than normal mice.

4. ACTH, the pituitary gland hormone

which stimulates the adrenal glands to produce cortisone, failed to increase resistance to polio in monkeys and in fact made the animals more susceptible to the disease, Drs. J. D. Ainslie, T. Francis, Jr., and G. C. Brown of the University of Michigan reported. Their study was an attempt to learn more about the relation between the polio virus and the animal or human it invades. The possibility of glands playing a role in this relationship appears from their studies and those of the Wisconsin group with underactive thyroid mice.

5. Hope for an anti-polio vaccine seems to get some encouragement from studies reported by Drs. Hilary Koprowski, Thomas W. Norton and George A. Jervis of the New York State Department of Mental Hygiene at Letchworth Village, Thiells, N. Y., and the Lederle Laboratory, Pearl River, N. Y. These scientists adapted a monkey strain of polio to Swiss albino mice by injecting it into a mouse brain, recovering it from the first mouse, injecting it into a second, and so on for seven transfers, or passages. The same strain was also adapted to cotton rats.

When this rodent-adapted strain was used to vaccinate monkeys, it showed a very low degree of virulence for the animals and markedly increased their resistance to the original, unadapted strain of polio virus.

Science News Letter, June 9, 1951

## TECHNOLOGY

# Housewives Will Be Able To Cook on Glass Soon

► **HOUSEWIVES** WILL be cooking on glass in the future as the result of the development of a new infrared stove lamp that can be fitted into the standard space on electric stoves.

Very tough and heat-shock resistant glass of high silica content is used in the 1250 watt infrared lamp. Lead can be melted easily on the flat upper surface of the lamp and an ice cube can be vaporized quickly without danger of breaking the unit.

A red glass plate above the actual lamp with its gold reflector gives visual warning the instant the lamp is turned on.

Corning glass is used by Sylvania Electric Products which has just begun supplying this new lamp to range manufacturers.

Science News Letter, June 9, 1951





**NO INTOXICATION**—You can't get drunk just by inhaling the fumes of alcohol. David Lester, left, and Leon A. Greenberg, right, are here performing experiments with an assistant showing that alcohol vapor, even though inhaled in this manner, does not intoxicate.

# MEDICINE

## Fumes Will Not Intoxicate

► IF YOU take your alcohol by inhaling it, you can take all you want without getting drunk. But persons taking antabuse treatment for alcoholism should stay away from alcoholic fumes such as might be found in factories where industrial alcohol is used. They might have as violent a re-

action as if they took a drink while on antabuse.

These conclusions are reported by David Lester and Leon A. Greenberg, research associates in the Yale Laboratory of Applied Physiology. They say "it is virtually impossible" for a person to become intoxicated simply by inhaling a large amount of alcohol.

Up to 62% of alcohol vapor inhaled can be absorbed into the blood stream. The remaining 38% is usually exhaled. But the 62% absorbed by the blood is burned by the body fast enough to prevent intoxication.

A person who is drinking alcohol, however, will get drunk much faster if he is in a room with large amounts of alcohol vapor in the air. Details of the studies are published in the Quarterly Journal of Studies on Alcohol (June).

Science News Letter, June 9, 1951

## NEW! NATIONAL SPRAYER



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### National Laboratories

11000 S. E. Linwood Ave., Portland 22, Ore.

# INDUSTRY

## Razor Blades of Glass Produced by New Method

► RAZOR BLADES made of glass, designed to replace the ordinary steel type, are produced by a method on which the government has issued a patent. The keen cutting edge on the glass blade is made by grinding followed by treatments in an etching bath.

The blanks from which the blades are made are similar in size, thickness and quality of glass to high quality microscope slides. It has been found, the inventors claim, that glass blades of superior keenness and edge-holding quality can be produced economically by their process.

It includes grinding on a relatively rough stone, rotating away from the edge, and then subjecting the edge to a series of short dips in an etching bath, following each dip with rinsing or cleansing. The etching bath contains hydrofluoric acid.

Inventors are Irving D. Wallach, Port Washington, and Emil C. Joost, Springfield Gardens, N. Y. They received patent 2,555,214.

Science News Letter, June 9, 1951

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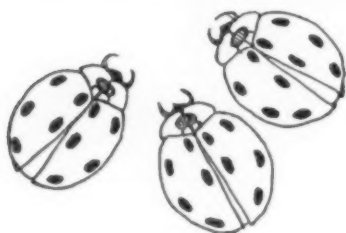
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## • RADIO

Saturday, June 16, 1951, 3:15-3:30 p.m. EDT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. W. E. Dove, director of entomological research, U. S. Industrial Chemicals, Inc., Baltimore, Md., will discuss "War Against the Insects."



Lady-Beetle

"Ladybird, ladybird, fly away home.  
Your house is on fire, your children will burn."

► THIS CHANT has been a favorite of children for no one knows how long. For these bright little beetles, more ready than most of their kin to use their wings, are

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very attractive to the youngsters.

It is easily understandable that an early and naive natural history should have called these apparently harmless, gentle insects "ladybirds." But more recent and careful investigations have shown that by rights they should be known as "leopard beetles," for they are among the most voracious little hunters in the insect kingdom.

There are many species of ladybirds, but in general they all resemble a tiny round pill cut in half. Their short legs are attached to the flat side of their body, and they run as fast as these short legs can carry them, first in one direction, then in another.

The ladybird comes in a variety of colors. Sometimes she is black with red or yellow spots, sometimes red or yellow with black spots, but always her coat is shining. Fast as her legs will carry her, the ladybird is still slow-moving, like most of the round

beetles. The lady's prey, however, is slower still, for it consists mainly of aphids, scale insects and similar plant parasites.

This predacious habit on the part of the ladybirds naturally makes them valuable friends of man, for our gardens and orchards suffer heavily from the inroads of these pests. The fruit-raising industry particularly pays millions in involuntary tolls to various types of scale insects. In some regions, notably California, the capture of wild ladybirds and turning them loose in the groves has become a very important horticultural practice.

The ladybirds commonly winter in the debris on the forest floor in the woodlands of the higher hills, and to these places the gatherers go, shaking and sifting them out of their winter nests. The beetles are as a rule too sleepy to mind, and they are carefully kept at the proper temperature in cold storage until spring.

Science News Letter, June 9, 1951

### GENERAL SCIENCE

## "Elite" Charges Are Wrong

► CHARGES that the college deferment plan—which swung into action May 26 when 175,000 students were tested for draft deferment—is unfair to the not-so-smart and might set up an intellectual elite are wrong. This is the statement of Dr. M. H. Trytten, the man most responsible for the draft deferment tests.

In an interview with Science Service, he was answering the position of some prominent educators and of the Committee on the Present Danger, led by Harvard President James B. Conant and Dr. Vannevar Bush. Latest statement on behalf of the committee was made by Dr. William C. Menninger, prominent psychiatrist, who declared that the present Selective Service System placed the burden of fighting on the "dumb boys".

Dr. Trytten, director of the Office of Scientific Manpower of the National Research Council, is general chairman of the six scientific and educational committees which formulated the plan whereby up to 500,000 college students will be deferred. General Hershey accepted the plan on the recommendation of those six committees.

Dr. Trytten told Science Service: "This cry of equality is pure emotionalism. Every one of the 14,000,000 veterans of World War II knows that equality of sacrifice is a myth. Millions who were drafted never went overseas, millions who went overseas never heard a shot fired in anger.

"Under Universal Military Service there would be, relatively, few infantrymen in the front lines, relatively few pilots engaged in combat. The rest brought in to the Armed Forces would be engaged in the thousands of jobs at varying distances from the front for which the Armed Forces have classifications. Most of these jobs are necessary.

"As a matter of fact, if the civilians do not provide for the college education of that percentage of our young men who can absorb it and use it for the benefit of our country's defense, the Armed Forces will have to do the job. This will mean that the taxpayers will pay for the college education of thousands of young men brought into the service. In addition they will pay for their food, their uniforms and their salaries while being educated. The Armed Forces recognize the need for college-trained men in the service. That is why they support the Hershey plan for college deferments."

Dr. Trytten pointed to what he called another, more basic fact which makes the present plan necessary. This is, he said, the manpower difference between the western allies and Russia and its satellites.

"To defeat Russia, if that becomes necessary in a general war," he declared, "we must place superior weapons in the hands of our soldiers. We cannot do this unless we have the scientists, technicians and en-

## YOUR SKIN AND ITS CARE

By H. T. Behrman, M.D., and O. L. Levin, M.D.

Two dermatologists give you the up-to-date scientific facts. They tell you in detail exactly what to do to beautify and improve your skin, how to avoid or correct skin disorders, and how to deal with many skin problems as: Daily care of the face—acne—cosmetics—pimples—blackheads—acne—whiteheads—cysts—boils—oily skin—dry skin—chapping—poison ivy—cold sores—hives—superficial hair—ringworm—moles—birthmarks—scars—warts—tumors—skin cancer—excessive sweating—etc.

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gineers to think them up, design them and then get them produced. We will not have those scientists, technicians and engineers unless we send to college those most qualified to go."

Getting back to the thousands of job classifications for which the Armed Forces must find the men, Dr. Trytten pointed out that many of them call for a technical or a college education.

"These men who gain the right to go to college as a result of their standing in the tests or in their classes," he said, "do not thereby necessarily escape military service. They are available to the Armed Forces

after they have completed their education. And the Armed Forces will be much happier with an educated man than with one whose education they have to complete.

"There can be no such thing as Universal Military Service," Dr. Trytten said. "By the very nature of the problem this country has to solve to defend itself, each citizen will have to do the job for which he is most capable. This means that, for some, their duty—not their privilege—will be to work in a laboratory, for others to work on an assembly line, and for others to use the superior weapons and techniques their brothers perfect."

Science News Letter, June 9, 1951

## Books of the Week

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWSLETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publication direct from issuing organizations.

AIRCRAFT JET POWERPLANTS—Franklin P. Durham—Prentice-Hall, 326 p., illus., \$6.65. A college textbook for students with some knowledge of thermodynamics and fluid mechanics. There is special emphasis on the gas turbine.

ALCOHOLISM AND SOCIAL STABILITY—Robert Straus and Selden D. Bacon—Hillhouse Press, Reprint, 30 p., paper, 50 cents. Reprinted from *Quarterly Journal of Studies in Alcohol*. A study of occupational integration in 2,023 male clinic patients.

THE CHEYENNE IN PLAINS INDIAN TRADE RELATIONS 1795-1840—Joseph Jablov—Augustin, 100 p., illus., \$2.50. This is Monograph XIX of the American Ethnological Society. Discusses tribal interrelationships as affected by a trading economy.

COLOR IS HOW YOU LIGHT IT—Sylvania Electric Products, Inc. 2d ed. 24 p., illus., paper, 50 cents. A simplified lighting guide for commercial and home decoration which analyzes how colors look under different lights.

DATE CULTURE IN THE UNITED STATES—Roy W. Nixon—Govt. Printing Office, Revised ed. 57 p., illus., paper, 25 cents. Survey of the problems and methods of date growing in the United States.

DISEASES IN OLD AGE—Robert T. Monroe—Harvard Univ. Press, 407 p., \$5.00. No. 11 in the Harvard Univ. series of monographs in Medicine & Public Health. A clinical and

pathological study of 7941 individuals over 61 years of age.

THE EARLY ARABIAN NECROPOLIS OF AIN JAWAN, A PRE-ISLAMIC AND EARLY ISLAMIC SITE ON THE PERSIAN GULF—Richard LeBaron Bowen, Jr.—American Schools of Oriental Research, 70 p., illus., paper—\$1.75, board—\$2.00. Constitutes Bulletin Supplementary Studies Nos. 7-9. Reports archaeological findings.

FUTURE TEACHERS OF AMERICA (ELEVENTH YEARBOOK—1951)—National Education Association of the United States—292 p., illus., paper, \$1.00. The major portion is devoted to a listing by states of all chapters and clubs connected with the National Education Association.

THE IMPORTANCE OF THE GRAIN DISTILLING INDUSTRY TO OUR NATIONAL FEED AND FOOD ECONOMY—Distillers Feed Research Council, Inc., 32 p., illus., paper, free upon request to publisher, 1232 Enquirer Bldg., Cincinnati 2, Ohio. Graphic illustrations of the role of the grain distilling industry in our economy.

THE KANGAROO RATS (DIPDOMYS) OF BAJA CALIFORNIA, MEXICO—Laurence M. Huey—San Diego Society of Natural History, 51 p., illus., paper, 70 cents. TRANSACTIONS, Vol. XI, No. 10., pp. 205-256. Study made from representative collections of kangaroo rats.

MOBILIZATION GUIDE FOR SMALL BUSINESS—Defense Production Administration—Govt. Printing Office, 31 p., paper, 10 cents, Rm. 6225, Main Commerce Bldg., Dept. of Commerce, Washington 25, D. C. Designed to help small businessmen locate government services and share in defense orders and in obtaining consumer materials.

PERFORMANCE STANDARDS FOR RAYON FABRICS—Jules Labarthe, Jr.—Mellon Institute, Reprint, 3 p., paper, free upon request to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Reprinted from May 1951 issue of *Stores*.

PETROLEUM FACTS AND FIGURES—American Petroleum Institute, 9th ed., 491 p., illus., paper, \$2.50. A compendium of statistics on sales, prices, exports, production, etc.

A PILOT-PLANT STUDY OF THE NEUTRALIZATION OF ACID DRAINAGE FROM BITUMINOUS COAL MINES—S. A. Braley, Sr.—Mellon Institute,

14 p., illus., paper, free upon request to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Of interest to those concerned with the problem of controlling stream contamination by coal-mine drainage.

THE SHOVEL-NOSED SNAKE, CHIONACTIS WITH DESCRIPTIONS OF TWO NEW SUBSPECIES—Laurence M. Klauber—San Diego Society of Natural History, 63 p., illus., paper, 85 cents. TRANSACTIONS, Vol. XI, No. 9, pp. 141-204. A study of the desert snake, *Chionactis*.

SYNTHESIS OF ELECTRONIC COMPUTING AND CONTROL CIRCUITS—Computation Laboratory Staff—Harvard Univ. Press, 278 p., illus., \$8.00. This is Vol. 27 of The Annals of the Computation Laboratory of Harvard University. The design of digital computing machinery receives special emphasis. For the engineer, physicist, mathematician and logician.

THERMODYNAMICS OF FLUID FLOW—Newman A. Hall—Prentice-Hall, 278 p., illus., \$7.35. This is a textbook for students who have some background in the fundamentals of fluid mechanics and thermodynamics. Major emphasis is on theory.

THE VOGDES COLLECTION OF TRILOBITES—B. F. Howell—San Diego Society of Natural History, 71 p., illus., paper, \$1.00. TRANSACTIONS, Vol. XI, No. 11, pp. 257-328. An annotated list of General Vogdes' collection of fossils. Science News Letter, June 9, 1951

A new cattle-vaccine laboratory in Brazil will specialize in vaccines for hoof-and-mouth disease.

When the mule deer senses danger it raises its head and swings its huge ears around like a scanning radar antenna.

Nature's best reservoirs to store winter water for summer use are the deep snow banks that form in high mountain country and melt slowly as hot weather approaches.

Early in the 19th century, sea captains visiting the Pacific Galapagos islands, took on board a hundred or more of the giant tortoises found there, kept them for months without food or water, and used them for food.

### ENCYCLOPEDIA OF ATOMIC ENERGY

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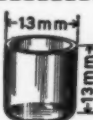
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⚙️ **COMMUNICATION SYSTEM**, which permits private talk between headquarters and individual drivers of police and other fleet cars, is an all-electronic system employing two-way FM radio. In present systems, car drivers hear all messages from headquarters, and all back-talk conversations.

Science News Letter, June 9, 1951

⚙️ **VOICE RECORDER**, midget size, is an English development for use on speedy jet planes to record observations made by the test pilot. It replaces the former pencil-and-pad method that necessarily takes time that should be devoted to watching the ship and its instruments.

Science News Letter, June 9, 1951

⚙️ **BEDSIDE CONTROL**, for the electrically-heated blanket, has an illuminated dial which lights up when the current is on, making it visible in the dark. The control also regulates the selected degree of warmth and automatically compensates for room-temperature changes.

Science News Letter, June 9, 1951

⚙️ **COPY HOLDER** for the typist is an improved type of a board with line indicator to hold notepads and other copy work just above the typewriter carriage where easily seen. A touch of a lever alongside the keyboard raises the copy one, two or three lines at a time.

Science News Letter, June 9, 1951

⚙️ **LIFE PRESERVERS** for small children dumped in the water from a plane crash are worn like double-bibs high on the chest as shown in the picture. They are inflated from carbon dioxide cylinders on the back

## Do You Know?

Trifol, a legume which does well in such northern states as Vermont, has a feeding value equal to alfalfa.

The average motorist can increase his mileage per gallon of gasoline by at least 10% by using proper driving techniques.

Extremely fine wire for miniature electronic equipment is made by "eating down" larger wire to the size desired in an electrolytic bath.

The cactus-like boogum plant of Lower California, the Cirios, sometimes grows erect to a height of 50 feet and sometimes arches over until its crown touches the soil and becomes rooted.



of the neck out of reach of tiny tots. In use, they tilt the wearers' heads out of the water.

Science News Letter, June 9, 1951

⚙️ **LIGHTING UNIT**, for taking still or moving pictures, is a light-weight folding affair with two arms, which can extend out over 26 inches. For lighting effects, arms can move horizontally in a 180-degree swing, while the two sections which hold two lights each, can be rotated 350 degrees.

Science News Letter, June 9, 1951

⚙️ **JEWELRY CLEANER**, for home use, is a liquid in a can into which rings and other articles can be swished, then rinsed under the water tap and wiped with a soft cloth. The cover of the can has a rod extending downward with hooks on its end to hold jewelry during swishing.

Science News Letter, June 9, 1951

⚙️ **PICTURE FRAMES** with enclosed hidden fluorescent lights illuminate pictures made of translucent plastic sheet, giving life-like, three-dimensional effect. Pictures can be easily interchanged to blend with new decorating schemes, and come in a variety of colors and subjects.

Science News Letter, June 9, 1951

## ATOMIC BOMB FIRST AID

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